

S/139/60/000/005/029/031
E032/Ell⁴

AUTHOR: Rays, G.B.

TITLE: Determination of the Principal Extraordinary Refractive Index of Uniaxial Positive Transparent Crystals Using Total Reflection from the Twinning Plane

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Fizika, 1960, No. 5, pp 172-173

TEXT: In a previous paper (Ref. 1) the author described a method for determining the principal extraordinary refractive index n_e for twin uniaxial negative crystals using total reflection of ordinary rays from the twinning plane. In a further paper (Ref. 2) it was shown that n_e can also be derived from reflection coefficients at the twinning surface of uniaxial crystals. In the present paper the author considers the reflection and refraction of ordinary and extraordinary waves using the refractive index surfaces and the geometrical construction due to MacCullagh (Ref. 3). These surfaces consist of two ellipsoids of revolution with semi-axes n_0 (along the optic axis) and n_e (perpendicular to this axis) and a sphere of radius n_0 lying between these ellipsoids, where n_0 is the ordinary refractive index. Card 1/2

S/139/60/000/005/029/031
E032/E114

Determination of the Principal Extraordinary Refractive Index of Uniaxial Positive Transparent Crystals Using Total Reflection from the Twinning Plane

index. It is shown that in order to determine n_e for uniaxial transparent crystals it is necessary to measure the angle of total reflection of the extraordinary wave from the twinning plane (α_0), it is necessary to know or measure n_o and, finally, the angle between the optic axis and the twinning plane φ_0 must also be known or measured. The appropriate formula is

$$\frac{n_e^2 - n_o^2 \tan^2 \alpha_0 + r^2}{\tan^2 \alpha_0 - s^2} \quad (4)$$

where $\cos \varphi_0 = r$ and $\sin \varphi_0 = s$.

There are 2 figures, 1 table and 3 references: 2 Soviet and 1 English.

ASSOCIATION: Khar'kovskiy institut mekhanizatsii sel'skogo khozyaystva

Card 2/2 (Khar'kov Institute for the Mechanization of Agriculture)

SUBMITTED: November 5, 1959

RAYS, G. B.

548.34

✓ 2006. THE QUESTION OF THE EXISTENCE OF A TRANSITIONAL LAYER IN MECHANICALLY TWINNED CRYSTALS.

G.B.RaS.
Dokl. Akad. Nauk SSSR, Vol. 106, No. 5, 841-4 (1956). In
Russian.

2705 Some theories of twinning suggest the existence of a
transitional layer ~ 500 Å thick between components of a twin.
Measurements of light reflected from the twin plane in mech-
anically twinned crystals of calcite contradict this and indi-
cate the change to be abrupt. A.L.Mackay

RATI_s, I.

Part I of III

Relation between constitution and dyeing properties of certain substantive azo-dyes. V. Krepelka and L. kais (Coll. trav. chim. Tchecosl., 1950, 15, 112-132).--- no. of mono- and di-amine aromatic compounds are diazotised and coupled with 2-amino-5-hydroxynaphthalene-7-sulphonic acid and the effects of substituents, and the length of the conjugated chain are compared. A substantivity factor is defined and determined by three different methods, and the percentage absorption "v" on the cotton cloth is determined. The substantivity factor, f_s is defined as the percentage diminution of 0.0005 μ -mol. of bisazo-, or 0.001 μ -mol. of monoazo-dyes in the bath after dyeing 10 g. of cotton under the best conditions. The diminution is measured spectrophotometrically, titrimetrically, and colorimetrically, with good agreement. The quantity $v = \frac{n \cdot f_s}{10}$ where n is the no. of μ . of dyestuff in the bath.

The following amino compounds are diazotised and coupled alkaline with 2-amino-5-hydroxynaphthalene-7-sulphonic acid (J acid) (I) (coupling at C(6)), the testifying having the characteristics shown: from NH₂Ph, f_s 17.6, v 0.64 (absorption max. 450 m μ . (e 38,275); from NH(C₆H₄.NH₂p)₂, f_s 35.55, v 1.36 (absorption max. 525 m μ . (e 14,250); from CH₂(C₆H₄.NH₂p)₂, f_s 22.45, v 0.63.

Part II of III

(absorption max. 497 mu. (e 34,500) (a dyestuff giving a range of colours by like ferrition, diazotisation, and coupling on the fibre); from benzidine, f_s 39.0, ν 1.442 (absorption max. 527.5 mu. (e 40,350); from 3: 3'-dichloro benzidine, f_s 33.1, ν 1.33 (absorption max. 520 mu. (e 47,000); from benzidine-3: 3'-disulphonic acid, f_s 25, ν 1-17 (absorption max. 515 mu. (e 41,000); from benzidine-2: 2'-disulphonic acid f_s 10.51, ν 0.474 (absorption max. 502.5 mu. (e 74,600); from benzidine sulphone, f_s 14.9, ν 0.777 (absorption max. 510 mu. (e 32,930); from benzidine sulphonate 3: 3'-disulphonic acid f_s 14.31, ν 0.712 (absorption max. 510 mu. (e 55,850); from diarino-silphene-2; 2'-disulphonic acid, f_s 12.1, ν 2.015 (absorption max. 532 mu. (e 42,500); from o-C₆H₄(NH₂)₂ (monoazo), f_s 25.25, ν 0.96 (absorption max. 510 mu. (e 15,610), and (bisazo), f_s 32.2, ν 1.05 (absorption max. 515 mu. (e 13,300); from p,p'-Diaminodiphenylurea, f_s 33.15, ν 1.302 (absorption max. 491 mu. (e 40,200); from 2:2'-Dinitro-4: 4'-diarino-diphenylmethane, f_s 12.2, ν 0.503 (absorption max. 497 mu. (e 27,350); from o-NH₂C₆H₄OH, f_s 20-6, ν 0.715 (absorption max. 500 mu. (e 25,600); from 3:3'-diarino-4: 4'-dihydroxy-diphenylmethane, f_s 26.75, ν 1.035 (absorption max. 495 mu. (e 12,600); from o-aminosalicylic acid, f_s 13.5, ν 0.604 (absorption max. 505 mu. (e 31,500); from 3: 3'-diarino-5: 5'-methylene-disalicylic acid, f_s 13.55, ν 0.91 (absorption max. 502 mu. (e 61,300). The dye o-C₆H₄(NH₂)₂ → I is made by

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reduction of $p\text{-NO}_2\text{C}_6\text{H}_4\text{NH}_2 \Rightarrow$ I with aq. Na_2S or by the hydrolysis of $p\text{-NH}_2\text{C}_6\text{H}_4\text{NHC}_6\text{H}_4\text{SO}_3\text{Na} \Rightarrow$ I. It is shown that the lowered substantivity of a dyestuff where 2 : 2'-sulphonic acid groups prevent free rotation is not due to the inability of the rings to lie in a plane, as it is also shown when the sulphonate group prevents free rotation and holds the rings in one plane. The substantivity is increased by OH groups and diminished by CO_2H and $\text{SC}_6\text{H}_4\text{OH}$ groups.

E.J.H. HIRSH.

RAYNUS, E.S., inzhener; SHLYAPNIKOVA, A.G., inzhener.

Construction of a large-panel frameless apartment house, Nov.tekh.
i pered. op. v stroi. 18 no.1:11-19 Ja '56. (MLRA 9:6)
(Leningrad--Apartment houses)

EAVINUS, O. S., EOC; KALITIN, P. YA.; LENFEFT, V. I.

MANGANESE STEEL

Low-manganese steel for shaped steel castings, Vest. mash., 32, no.4, 1952.

Monthly List of Russian Accessions, Library of Congress, October 1952.
Unclassified.

RAYNUS, O. S.

"Liquid State and Steel Crystallization" From the book, "Heat Treatment and Properties of Cast Steel," edited by N. S. Kreshchanovskiy, Mashgiz, Moscow 1955.

RAYS, R.; SHMIDT, A.; KANAKI, G.

First conference. Sov.profsoiuzy 7 no.24:38 D '59.
(MIRA 12:12)

1. Rabkorovskiy post pri Remontno-tekhnicheskoy stantsii,
g.Melitopol', Zaporozhskaya oblast'.
(Melitopol') (Repair and supply stations)

AUTHORS: Anisimov, K. N., Raysbaum, B. V. SOV/62-58-10-8/25

TITLE: Investigation in the Field of the Derivatives
of Unsaturated Phosphinic Acids
(Issledovaniya v oblasti proizvodnykh nepredel'nykh
fosfinovykh kislot)
Communication 21: Esters and Amides of β -Isooctyl-Oxy-Vinyl
Phosphinic Acid

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk,
1958, Nr 10, pp 1208-1211 (USSR)

ABSTRACT: This paper is a part in the series of investigations of phosphinic acids and their derivatives produced on the basis of combination reactions of phosphorus pentachloride with unsaturated compounds. Acid chloride of the β -isooctyl-oxy-vinyl phosphinic acid was synthesized according to the method described already earlier (Ref 1) by the action of PCl_5 on vinyl-isooctyl ether. For synthesizing complete esters of the β -isooctyl-oxy-vinyl phosphinic acid by the interaction of acid chloride with alcohols in benzene medium the method by Milobendzki and Sachnowski (Ref 2) was employed. In the present paper the authors report on the synthesis of acid

Card 1/2

Investigation in the Field of the Derivatives of SOV/62-58-10-8/25
Unsaturated Phosphinic Acids. Communication 21:
Esters and Amides of β -Iooctyl-Oxy-Vinyl Phosphinic Acid

chloride of the β -isooctyl-oxy-vinyl phosphinic acid, diethyl, dipropyl, dibutyl, diisobutyl, diisoamyl, dihexyl, diisooctyl, dimethoxy-ethyl ester of the β -isooctyl-oxy-vinyl phosphinic acid and tetramethyl diamide, tetraethyl diamide and piperidine of the β -isooctyl-oxy-vinyl phosphinic acid. The synthesis of tetramethyl diamide, tetraethyl diamide and dipiperide of the β -isooctyl-oxy-vinyl phosphinic acid was carried out according to the method by Michaelis (Ref 3). There are 1 table and 4 references, 2 of which are Soviet.

ASSOCIATION: Institut elementoorganicheskikh soyedineniy Akademii nauk SSSR
(Institute of Elementary Organic Compounds, Academy of Sciences, USSR)

SUBMITTED: March 6, 1957

Card 2/2

RAYSEK, K.; NAVRATIL, M.; GLYUKSMAN, I. (Chekhoslovakiya)

Pulmonary emphysema in wind instrument players. Gig. truda i prof.
zab. no.12:39-41 '61. (MIRA 14:12)

1. Klinika professional'nykh zabolеваний, Institut gigiyeny truda
i professional'nykh zabolеваний, Meditsinskiy punkt Natsional'nogo
teatra v Prague.

(EMPHYSEMA, PULMONARY)
(MUSICIANS--DISEASES AND HYGIENE)

28(1), 5(1)

SCOV/64-59-1-17/24

AUTHORS:

Rashkovan, L. V., Fayn, G. Z., Raysfel'i, A. A.,
Shelyastin, M. V.

TITLE:

Experimental Automation of the Production of Weak Nitric Acid
(Opytnaya avtomatizatsiya proizvodstva slaboy azotnoy kisloty)

PERIODICAL:

Khimicheskaya promyshlennost', 1959, Nr 1, pp 73-79 (USSR)

ABSTRACT:

The Opytno-konstruktorskiy byuro avtomatiki (Experimental Design Office for Automation) in cooperation with the Gosudarstvennyy institut azotnoy promyshlennosti (State Institute of Nitrogen Industry) developed a scheme for the automation of the production of weak nitric acid under atmospheric pressure for the operation of the Dneprodzerzhinskiy azotstukoviy zavod (Dneprodzerzhinsk Nitrogenous Manure Plant). To control this scheme the individual sections of the automation of the whole plant were examined separately. At first the experimental automation of the plant section for the conversion of ammonia (Fig 1) is described. The description of the automatic regulation shows that a pneumatic transmitter of the DPPM-270A type together with a secondary device of the 2RL-24V type, as well as connection blocks of the BS0-15 type and a regulator block of the 5RB-9A type, a remote ref..

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SOV/64-59-1-17/24
Experimental Automation of the Production of Weak Nitric Acid

erence input element of the BD-18 type, and gate valve V3 as well as relays RP-17A are used. To regulate the ammonia - air ratio an electromagnetic valve of the KE-2 type is used among other things, and to regulate the water level a pneumatic transmitter (datchik) DPP-280A, a pneumatic regulating system AUS and two signaling blocks 1RB-13 are used. To control the temperature of the nitrous gases a slightly modified electronic potentiometer EPP-09 is used. For protection from a possible explosion in the ammonia conversion a provisional arrangement with a potentiometer EPD-12 was used instead of a gas analyzer for infrared absorption GIP-5 from the OKBA production. A schematic representation of the partially automated beginning of operation (electric wiring) (Fig 2), as well as of the kinematic scheme of the regulation valves (Fig 3) with detailed explanations are indicated. The experimental automation of a number of columns of the department for acid absorption is described by a schematic representation (Fig 4). Except for a pressure gage of the EMID-4 type, an electronic device VEP-4 and a gas analyzer AFK-3, the above-mentioned devices are listed and their application is described.

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Experimental Automation of the Production of Weak Nitric Acid

Diagrams of an arrangement for the overflow between the acid columns (Fig 5), as well as of an additional cubic content to the pneumatic blocks AUS.(Fig 6) are also given. After the introduction of the described automation in ammonia conversion and of a number of acid-absorption columns a great simplification in the operation of plants could be noted. There are 6 figures.

Card 3/3

"APPROVED FOR RELEASE: 06/15/2000

CIA-RDP86-00513R001444410020-1

RAYSFEL'D, A.M., kand. ekon. nauk.

Standards for planning new railroads. Trudy MTEI no.6:59-82 '57.
(Railroads) (MIRA 11:5)

APPROVED FOR RELEASE: 06/15/2000

CIA-RDP86-00513R001444410020-1"

ANDREYEVA, N.S.; VOYNIK, A.I.; RAYSH, V.G.; TANCHER, N.I.; SHEVCHENKO, M.N.

Oxygen therapy by inhalation and subcutaneous injection. Vrach.delo
(MLRA 10:8)
no.8:863 Ag '57.

1. Penzenskaya gorodskaya bol'nitsa im. N.A.Semashko
(OXYGEN--THERAPEUTIC USE)

CHERTKOV, I.L.; MAKSIMENKO, A.S.; NOVIKOVA, M.N.; PAYSHENBAKH, M.O.

Lymphoid changes of hematopoiesis in bone marrow transplantation
in irradiated dogs. Med. rad. 9 no.6:8-19 Je '64. (MIRA 18:2)

1. Radiobiologicheskaya laboratoriya (zav.- prof. M.O. Raushenbakh)
TSentral'nogo ordena Lenina instituta gematologii i perelivaniya
krovi (dir. - dotsent A.Ye. Kiselev).

FORTUNATOV, M.A.; KURBATOVA, Ye.S.; RAYSKAYA, A.A.

Dynamics of commercial fish stocks of the Aral Sea. Mat. k pozn.
fauny i flory SSSR. Otd. zool. no.19:112-170 '50. (MIRA 11:3)
(Aral Sea--Fisheries)

SOVALOV, I.G., kand. tekhn.nauk; ROZENBOYM, L.S., inzh.;
KUCHEROVSKIY, C.A., inzh.; RAYSKAYA, A.D., inzh.;
OSMAKOV, S.A., kand. tekhn. nauk; BRAUDE, F.G., inzh.;
FINKINSHTEYN, B.A., inzh., red.

[Methods of molding precast concrete products] Metody
formovaniia sbornykh zhelezobetonnykh izdelii. Moskva,
Gosstroizdat, 1963. 49 p. (MIRA 17:9)

1. Moscow. Nauchno-issledovatel'skiy institut organizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stva.
2. Rukovoditel' laboratori i betonnykh i zhelezobetonnykh rabot Nauchno-issledovatel'skogo instituta organizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stva, Moskva (for Sovalov).
3. Laboratoriya betonnykh i zhelezobetonnykh rabot Nauchno-issledovatel'skogo instituta organizatsii, mekhanizatsii i tekhnicheskoy pomoshchi stroitel'stva, Moskva (for Rozenboym, Kucherovskiy, Rayskaya).
4. Sotrudniki Vsesoyuznogo nauchno-issledovatel'skogo instituta gidrotekhnicheskikh i sanitarno-tekhnicheskikh rabot (for Osmakov, Braude).

DEKHTYAR, M.V.; RAYSKAYA, G.M.

Influence of the texture of magnetic moments on the magnetic properties of polycrystalline ferromagnetics. Zhur.eksp.i teor.fiz. 17 no.10:911-914 '47.
(MLRA 6:7)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.
(Electromagnetism)

KISLITSYN, A.N.; GUSARSKAYA, N.L.; RAYSKAYA, I.P.

Modification of the composition of wood tar oils during vapor-phase pyrolysis. Gidroliz. i lesokhim.prom. 16 no.8:9-11 '63. (MIRA 17:1)

1. TSentral'nyy nauchno-issledovatel'skiy lesokhimicheskiy institut.

RAYSKAYA, M.G.

New method of determining the degree of inactivation of fer-
ments in vegetables after blanching. Kons.i ov.prom. 15 no.1:
41 Ja '60. (MIRA 13:5)
(Vegetables, Dried) (Enzymes)

RAYSKAYA, M.G.
RAYSKAYA, M.G.

Effect of tomato cell structure on consistency of tomato juice
(from "Food technology," 11 no. 1 Jan. 1957). Kons. i ov. prom.
12 no.11:44-47 N '57. (MIRA 11:1)
(Tomatoes)

RAYSKAYA, M.T.

Some data on the sensory innervation of the tongue in tailless
amphibians. Uch. zap. Volg. gos. ped. inst. no.16:160-163 '64.
(MIRA 19:1)

1. Kafedra fiziologii i morfologii Volgogradskogo gosudarstven-
nogo pedagogicheskogo instituta.

AGRANOVICH, Vladimir Moiseyevich; GINZBURG, Vitaliy Lazarevich;
VIRKO, I.G., red.; RAYSKAYA, N.A., red.

[Crystal optics with allowance for spatial dispersion and
excitation theory] Kristallooptika s uchetom prostranstvennoi
dispersii i teorii eksitonov. Moskva, Nauka, 1985. 374 p.
(MIRA 18:5)

VOL'KENSHEYN, Valentina Sergeyevna; RAYSKAYA, N.A., red.;
CHEBOTARENKA, A.V., red.

[Collection of problems for a general physics course]
Sbornik zadach po obshchemu kursu fiziki. Moskva, Nauka,
(MIRA 18:11)
1965. 464 p.

STREIKOV, Sergey Pavlovich; RAYSKAYA, N.A., red.

[Mechanics] Mekhanika. Moscow, Nauka, 1965. 526 p.
(MIRA 18:10)

BUKHOVTSEV, Boris Borisovich; KRIVCHENKOV, Vladimir Dmitriyevich;
MYAKISHEV, Gennadiy Yakovlevich; SHAL'NOV, Vladimir
Petrovich; NOVODVORSKAYA, Ye.M., red.; RAYSKAYA, N.A., red.

[Problems in elementary physics; textbook for self-
education] Sbornik zadach po elementarnoi fizike; posobie
dlia samoobrazovaniia. Moskva, Izd-vo "Nauka," 1964. 438 p.
(MIRA 17:7)

RAYSKAYA, M.G.

Stability of lycopene during heating (from "Journal of Science of Food and Agriculture," 8 no. 6 June 1957). Kons. i ov. prom. 13
no.4:46-47 Ap '58.
(Lycopene)

RAYSKAYA, M.G.

Apparatus for the distillation, recovery, and condensation of volatile oils in the manufacture of condensed fruit juices (from "Food industry of South Africa," 10 no.1 May 1957). Reviewed by M.G. Raiskaia, Kons. i ov. prom. 12 no.12:43 D '57. (MIRA 11:1)
(Essences and essential oils) (Fruit juices)

RAYSKAYA, M.G.

Machine for stuffing whole pickles into glass jars (from "Food packer,"
38 no. 5:1957). Kons. i ov. prom. 13 no. 2:44 P '58. (MIRA 11:2)
(Cucumbers)
(United States--Canning and preserving--Equipment and supplies)

RAYSKAYA, M.G.

Manufacture of canned sweet peppers (from "Western Canner and Packer," May 1957). Kons. i ov. prom. 14 no.1:45 Ja '59.
(MIRA 12:1)

(California--Pepper--Preservation)

RAYSKAYA, M.G.

RAYSKAYA, M.G.

Microbe contamination of the contents of cans after sterilization
(from "The food packer," 38 no. 5 May 1957). Kons. i ov. prom.
12 no.11:47 N '57. (MIRA 11:1)
(Food--Bacteriology)

RAYSKAYA, M.G.

Recent investigations in the drying of food products in Great Britain (for "Food technology," 11 no.6 Je 1957). Kons. i ov. prom. 13 no.1:43-45 Ja '58. (MIRA 11:2)
(Food--Drying)

RAYSKAYA, M.G.

Rapid method for dehydrating meat by sublimation (from "Food in Canada," 16 no.11 November 1956). Kon. i ov. prom. 12 no.2:45-46
F '57. (MLRA 10:6)

(United States--Meat industry)
(Great Britain--Meat industry)

KHENNAN, R.S. [Hannan, R.S.]; RAYSKAYA, M.G. [translator]; CHERNYAYEV, N.D. [translator]; ROGACHEV, V.I., kand.tekhn.anuk, red.; VOYKOVA, A.A., red.; CHEBYSHEVA, Ye.A., tekhn.red.

[Scientific and technological problems involved in using ionizing radiation for the preservation of food. Translated from the English] Nauchnye i tekhnologicheskie problemy primeneniya ioniziruiushchikh izluchenii dlja konservirovaniya pishchevykh produktov. Moskva, Pishchepromizdat, 1957. 278 p. (MIRA 11:4) (Radiation sterilization)

RAYSKAYA, M.G.

Transportation of threshed peas from the field to the factory in
larg-size hoppers (from "Western Canner and Packer," # 49, no.10,
1957). Kons. i ov. prom. 13 no.7:46-47 J1 '58. (MIRA 11:6)
(Peas—Transportation)

~~RAYSKAYA, M.G.~~

New type of plastic containers for frozen foods (from "Food," 25 no.301
October 1956). Kons. i ov. prom. 12 no.2:46 P '57. (MLRA 10:6)
(United States--Containers)

RAYSKAYA, M.M.

Therapeutic effectiveness of andaxin in borderline neuropsychic diseases in children. Zhur.nevr.i psikh. 62 no.7:1092-1095 '62.
(MIRA 15:9)
1. Detskoye otdeleniye Psichonevrologicheskoy gorodskoy klinicheskoy bol'nitsy No.1 imeni P.P.Kashchenko (glavnnyy vrach A.L.Andreyev).
(MEPROBAMATE) (NEUROSES)

RAYSKAYA, M.T., kand.biolog.nauk

Microscope preparations in the biology class. Biol. v shkole no.5:
84-85 S-0 '60. (MIREA 13:11)

1. Stalingradskiy pedagogicheskiy institut.
(Biology—Study and teaching) (Microscopy)

RAYSKAYA, M.T., kand.biologicheskikh nauk

Distribution of capillaries in the tongue of newborn infants
and the interrelations of capillaries with nerve fibers. Uch.
zap.Volg.gos.ped.inst. no.13:160-163 '61. (MIRA 15:12)
(TONGUE--INNERVATION) (TONGUE--BLOOD SUPPLY)

RAYSKAYA, M.T., kand.biologicheskikh nauk

Morphology of the sensory apparatus of ganglia in the solar plexus of human embryos and fetuses. Uch.zap.Volg.gos.ped.
(MIRA 15:12)
inst. no.13:153-159 '61.
(SOLAR PLEXUS) (EMBRYOLOGY, HUMAN)

RAYSKAYA, M.T., kand.biologicheskikh nauk

Multiplication of nerve cells in the solar plexus of man.
Uch.zap.Volg.gos.ped.inst. no.13:149-152 '61. (MIRA 15:12)
(SOLAR PLEXUS) (CELL DIVISION (BIOLOGY))

FABELINSKI Immanuil Lazarevich BREUS, T.K., red.; RAYSKAYA,
N.A., red.

[Molecular scattering of light] Molekularnoe rasselianie
sveta. Moskva, Nauka, 1965. 511 p. (MIRA 18:12)

KOGAN, Boris Yur'yevich; RAYSKAYA, N.A., red.

[One hundred problems in physics] Sto zadach po fizike.
Moskva, Nauka, 1965. 60 p. (MIRA 18:7)

EL'PINER, Isaak Yefimovich; KAYUSHIN, L.P., red.; RAYSKAYA, N.A.,
red.; PLAKSHE, L.Yu., tekhn. red.

[Ultrasound; its physicochemical and biological effects]
Ul'trazvuk; fiziko-khimicheskoe i biologicheskoe deistvie.
Moskva, Fizmatgiz, 1963. 420 p. (MIRA 16:7)
(Ultrasonic waves)

BURESH, Ya.[bures, Jan]; PETRAN', M.[Petran, Mojmir]; ZAKHAR, I.
Zachar, Jozef]; KEDER-STEFANOVA, I.A.[translator]; SIRNOV, G.D.,
red.; RAYSKAYA, N.A., red.; YANOVSKAYA, Ye.A., red.; REZOURKHOVA,
A.G., tekhn. red.

[Electrophysiological methods of research]Elektrofiziologicheskie
metody issledovaniia. Pod r.d. i s predisl. G.D.Smirnova. Mo-
skva, Izd-vo inostr. lit-ry, 1962. 454 p. Translated from the
Czech. (MIRA 15:12)

(Electrophysiology)

KARPAS, A.M. [translator]; NIKOL'SKAYA, T.A. [translator]; SAMOSUDOVA,
N.V. [translator]; FRANK, G.M., prof., red.; RAYSKAYA, N.A.,
red.; GRIBOVA, M.P., tekhn.red.

[Problems in the electron microscopy of the tissues; collection
of articles] Voprosy elektronnoi mikroskopii tkanei; sbornik
statei. Moskva, Izd-vo inostr.lit-ry, 1959. 115 p.
(MIRA 13:8)

(ELECTRON MICROSCOPY) (TISSUES)

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RECORDED IN THE OFFICE OF THE SECRETARY OF STATE
ON JUNE 15, 2000.

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ON JUNE 15, 2000.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001444410020-1"

USSR/Human and Animal Morphology (Normal and Pathological)
Peripheral Nervous System

S-3

Abstr Jour : Ref Zhur - Biol., No 12, 1958, No 55094

Author : Raykova, M.T.
Inst : Stalingrad Institute of Medicine
Title : On the Problem of Age Determined Changes in Pericellular Systems.

Orig Pub : Sb. nauchn. robot teor. i klinich. kafodr, Stalingr. med. in-ta, Stalingrad, 1956, 71-74

Abstract : In embryos, fetuses and newborn babies (human) the pericellular apparatuses (systems) (PA) are not formed as yet. Their development starts with the appearance of very fine fibers which soon bulges at their ends, which subsequently change into a neurofibrillary frame. In 3 year old children it has the appearance of weakly impregnated small cernes and ringlets. The pericellular substance appears later. The complete development of PA is terminated after the age of 5 years has been reached. In adults, the dimensions of the

Cord : 1/2

USSR/Human and Animal Morphology (Normal and Pathologic.1)
Peripheral Nervous System

b-3

Abs Jour : Ref Zhur - Biol., No 12, 1958, No 55092

Author : Rozskov, N.T.

Inst : Stalingrad Institute of Medicine.

Title : The Problem of Sensual Innervation of the Tongue Mucosa in
Newborn Babies.

Orig Pub : Sb. nauchn. rabot teor. i klinich. kafedr Stalingr. med.
inst., Stalingrad, 1956, 78-80

Abstract : The mucous membranes of the tongue in newborn possesses ample
sensual innervation with a great number of bushy receptors,
which are situated in the depth of the papillary bodies, at
their base and along the run of the blood-carrying vessels.
The bushy receptors of the filiform and fungiform papillary
bodies show morphological variations.

Card : 1/1

RAYSKAYA, M.T.

Some data on the morphology of neural elements of the tongue
in whole-body X-irradiation. Nauch.dokl.vys.shkoly; biol.
nauki no.1:51-55 '59. (MIRA 12:5)

1. Rekomendovana kafedroy zoologii Stalingradskogo gosudar-
stvennogo pedagogicheskogo instituta im. A.S.Serafimovicha.
(TONGUE--INNERVATION) (X RAYS--PHYSIOLOGICAL EFFECT)

RAYSKAYA, V.A.

Z Copolymerization of 1,3-butadiene with methacrylic acid esters. M. P. Margaritova and V. A. Raiskaya. *Trudy Moskov. Inst. Tonkoi Khim. Tekhnol.* 1953, No. 4, 37-45; MT Referat Zhur., Khim. 1954, No. 42814.—Copolymerization of 1,3-butadiene (I) with Me (II) and nonyl (III) methacrylate was studied. The copolymerization consts. were detd. to be $k_{II}/k_{I,II} = 0.75$, $k_{II,II}/k_{II,I} = 0.31$, $k_{I,I}/k_{I,II} = 0.76$, and $k_{III,III}/k_{III,I} = 0.32$. The last two values were calcd. by the approximate formula (Gindin, et al., C.A. 42, 6715c). For both systems azeotropic mixts. of the following compns. were observed: for the system I-II 73.5 mole % of I and 26.5 mole % of II, and for the system I-III 74.3 mole % of I and 25.7 mole % of III. Calcn. of the intramol. distribution of the azeotropic mixt. (Gindin, et al., C.A. 42, 804b) show with the highest probability that areas exist contg. 1 link of I and 3 links of II in a row. A study of the relation between the vitrification temp. and compn. showed that the polymers of I and III have a lower vitrification temp. than the copolymers of I and II. M. Hoshch

MAIGINA A., ... A.

"Polymerization Kinetics in the Presence of Inhibitors." Cand Chem Sci,
Moscow Inst of Fine Chemical Technology, Moscow, 1954. (Zashchitn, No 5, Mar 55)

So: Sum. No 670, 29 Sept 55 - Survey of Scientific and Technical Dissertations
Defended at USSR Higher Educational Institutions (15)

L 15945-66 EWT(m)/ETG(f)/EWG(m)/T/EWP(t)/EWP(b) IJP(c) RDW/JD

ACC NR: AT6002259

(A)

SOURCE CODE: UR/2564/65/006/000/0261/0266 36

AUTHOR: Bakradze, R. V.; Sysoyev, L. A.; Rayskin, E. K.; Konvisar, L. V.

B+1

ORG: none

TITLE: Possibility of obtaining homogeneous CdS-type single crystals of predetermined structure and orientation [Paper presented at the Third Conference on Crystal Growing held in Moscow from 18 to 25 November, 1963]

SOURCE: AN SSSR. Institut kristallografii. Rost kristallov, v. 6, 1965, 261-266

TOPIC TAGS: single crystal growing, cadmium sulfide, zinc sulfide, cadmium selenide, etched crystal

ABSTRACT: The paper describes an experimental study of the relationship between the polarity of the structure of $A^{II}B^{VI}$ -type compounds with a wurtzite lattice and the growth of crystals of a predetermined orientation. The polarity of structure of CdS, CdSe, and ZnS hexagonal single crystals was studied by chemical etching, in which different etchants were selected for the different crystallographic planes. The characteristics of the etching process which were observed were due to the nature of the chemical

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ACC NR: AT6002259

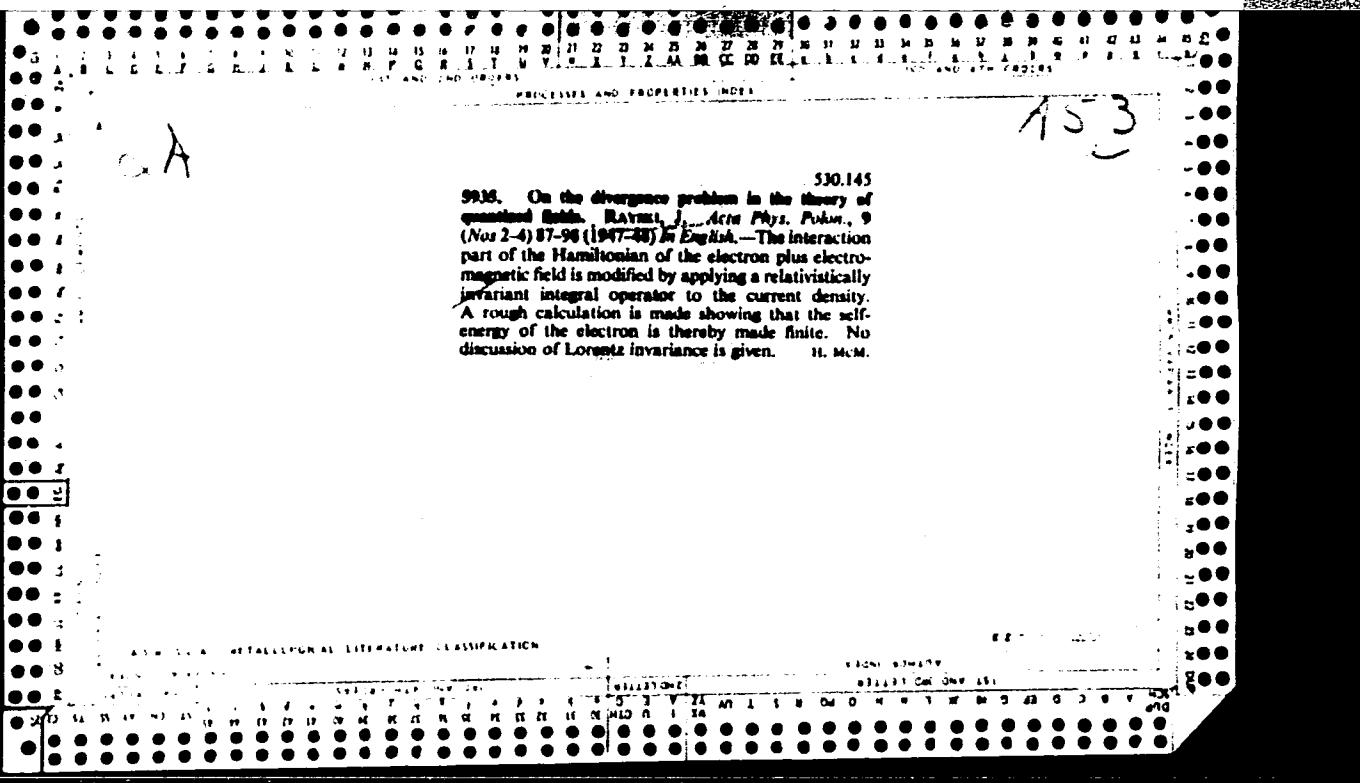
bonds, which cause an unlike distribution of the cations and anions in the various planes. The growth of CdS crystals in the direction of axis C₆ in the presence of excess cadmium in the melt was found to be faster than in any other direction. The anisotropy observed in the etching of the lateral faces of a CdS prism indicates the presence of growth polarity in a direction perpendicular to axis C₆. Use of a seed, taking into account its polarity along axis C₆, made it possible to achieve a reproducible growth of CdS single crystals (weighing over 100 g). Orig. art. has: 5 figures.

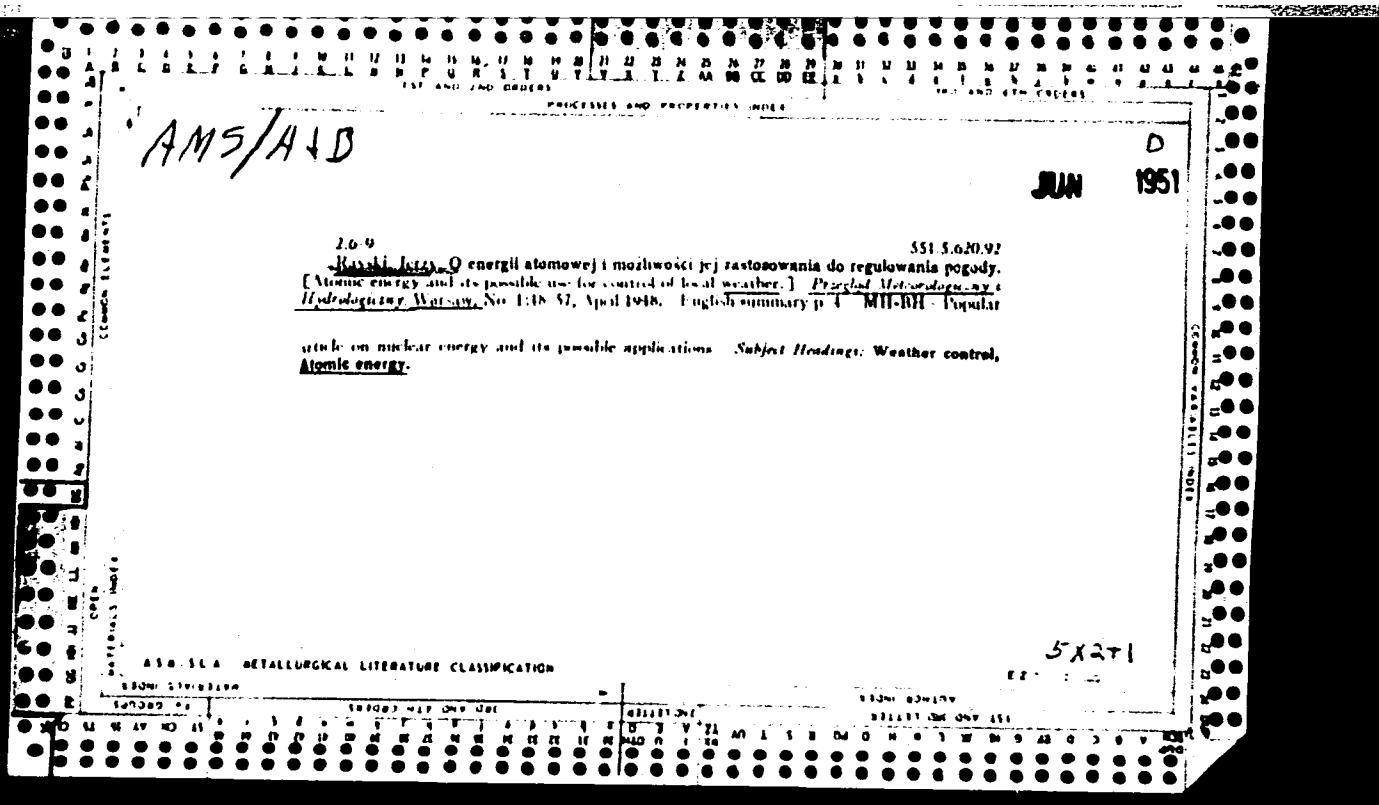
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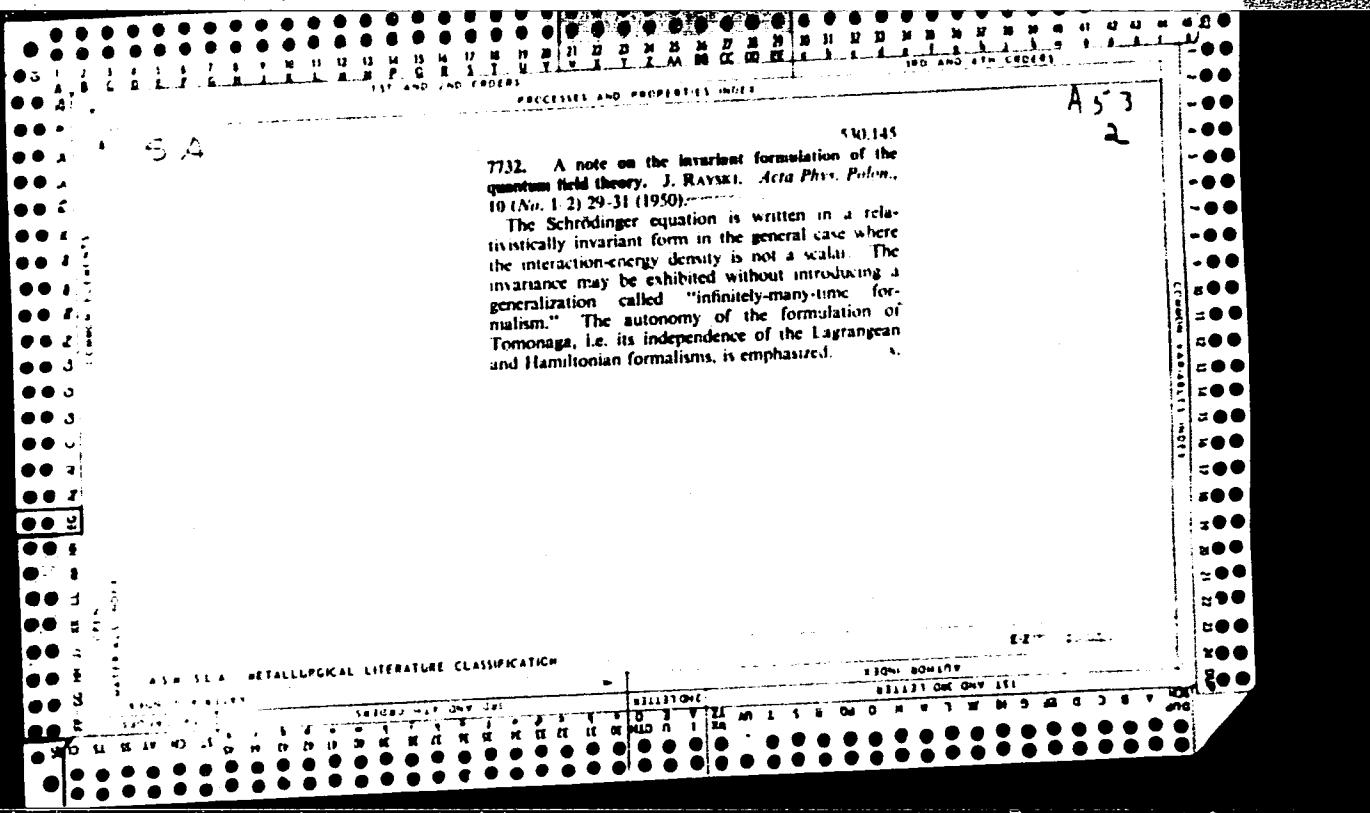
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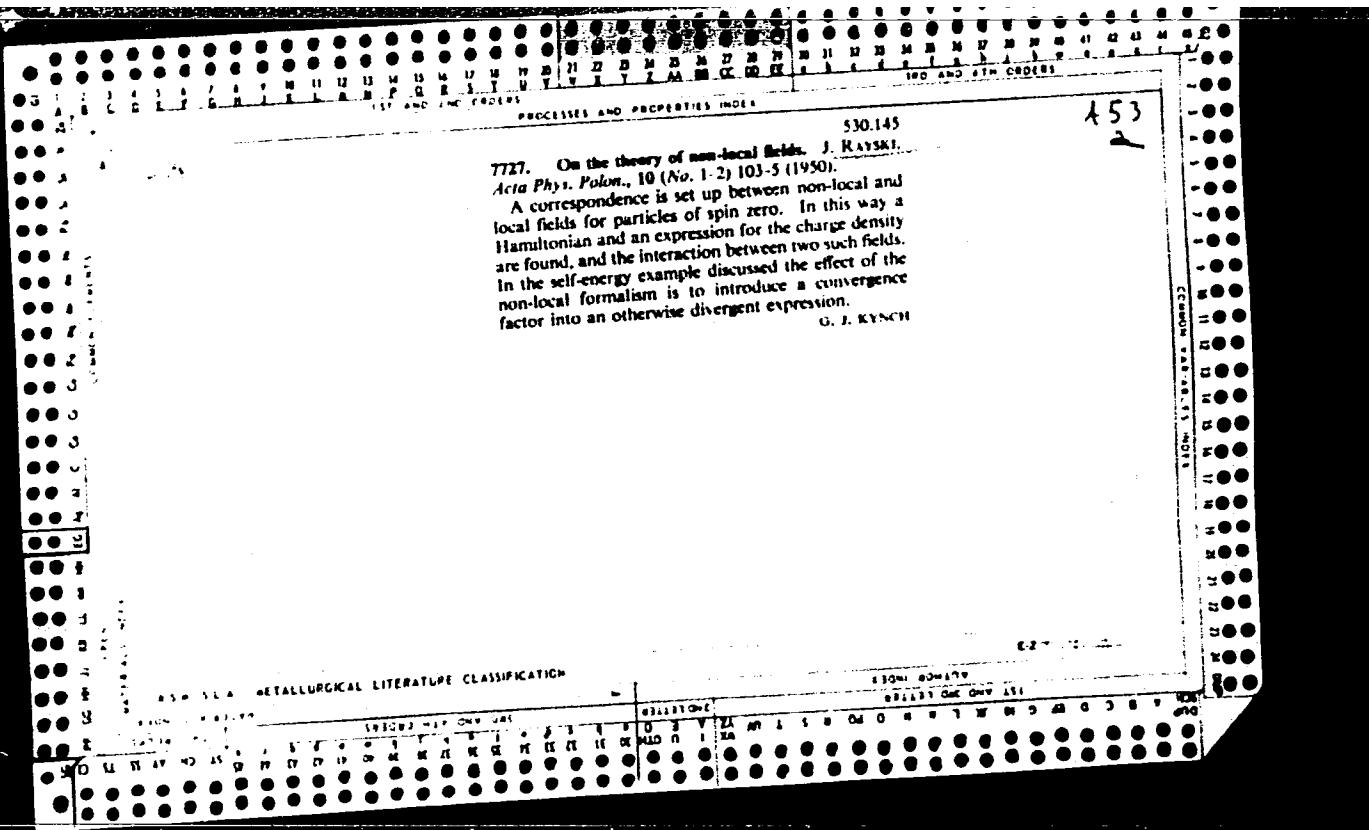
R.YSKII, I., inzh.

Electric water heaters. Obshchestv. pit. no.8:54-55 Ag '61.
(NPA 14:10)
(Water heaters)









Rayski, J.

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2002. On non-local quantum electrodynamics. I.
Harrel. *Acta phys. Polon.*, 11, No. 2, 109-30 (1958).

Proposed rule for constructing observable densities
enables the formulation of a non-local electro-
dynamics. The basic equations describing the
interaction between the electromagnetic and the
electric fields are integral (or mixed integro-
differential) equations. The free waves and the non-
local analogues of Green's functions, A^{11}, A^{44} may
be constructed by invoking Born's principle of
reciprocity (i.e. a symmetry between position and
infinitesimal displacement operators). The S -matrix
may be constructed by Yang's method. The com-
mutation relations for the (perturbed) fields may be
computed from the field equations, provided the
homogeneous integral equation possesses no solution.
The conservation laws are secured in spite of the
absence of continuity equations. Constant electro-
magnetic potentials are shown to be physically
meaningless. The non-local formalism is free from
the usual convergence difficulties.

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MASS QUANTIZATION AND ISOTOPIC SPIN IN NON
LOCAL-FIELD THEORY

J. NARAILI-NICHOLAS

Universitas Matematika, Lublin, Poland. "Kwarta Cimento" 19,

1726-39 (1953) Dec. 1. (In English)

Starting from general remarks on the theory of fields,
the local formulation of which seems to be insufficient,
the author presents a non-local generalization of the
Dirac equation that leads, by means of convenient
supplementary conditions, to a mass spectrum for the
particles of spin $\frac{1}{2}$. The analogies of this mass spectrum
with those obtained from the Yukawa and Pais theories
are discussed. (auth)

Mathematical Reviews
Vol. 15 No. 1
Jan. 1954
Mathematical Physics

Rayski, Jerzy. On a regular field theory. I. Classical.
Acta Phys. Polonica 11, 314-327 (1953).

The author here shows how his classical field theory with non-local interactions [same Acta 11, 109-130 (1952); these Rev. 14, 705; and earlier papers there cited] may be derived from a principle of stationary action. From the action principle he deduces in the usual way integral conservation laws for the total charge, energy, momentum, and angular momentum of the system. In this formalism differential conservation laws are not obtained. In an appendix it is proved that, under certain conditions on the form-factor of the non-local interaction, regular solutions of the field equations will always exist.

F. J. Dyson.

RAYSKI, J.

Mathematical Review
June 1954
Mathematical Physics

Hanus, W., and Rayski, J. Vacuum polarization in a non-local electrodynamics. Acta Phys. Polonica 12; 181-193 (1953). (Russian summary)

The authors calculate by perturbation theory the vacuum polarization produced by an external source of current, in the non-local electrodynamics of J. Rayski [Proc. Phys. Soc. Sect. A. 64, 957-968 (1951); these Rev. 13, 609]. They find (i) a non-gauge-invariant term corresponding to a large finite self-energy for the photon, (ii) a finite charge-renormalization term, and (iii) other finite terms representing observable polarization effects. These are exactly the same effects that have been found with other non-gauge-invariant cut-off versions of electrodynamics [R. P. Feynman, Physical Rev. (2) 76, 769-789 (1949); these Rev. 11, 765].

F. J. Dyson (Princeton, N. J.)

RAYSKI, J.

"On the Energy of Bound States in Quantum Field Theory." I. In English. p. 51
(Acta Physica Polonica. Vol. 13, no. 1, 1954 Warszawa.)

Vol. 3, no. 6

SC: Monthly List of East European Accessions./Library of Congress, June 1954, Unclassified.

RAYSKI, J.

"On a regular field theory.III" Acta Microbiologica Polonica, Warsaw, Vol. 13,
no. 2, 1954, p. 95.

SO: Eastern European Accessions List, Vol 3, No 11, Nov 1954, L.C.

KAYSKI, J.

"On the Mass Spectrum of Elementary Particles." In English. p. 77
(Acta Physica Polonica. Vol. 13, no. 1, 1954 Warszawa.)

Vol. 3, no. 6

SC: Monthly List of East European Accessions./Library of Congress, June 1954, Uncl.

Rayski, J.

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Rayski, J. On a Regular Field Theory (Quantized).

Acta Physica Polonica (PAN), No. 1, 1954, pp. 15-28.

A non-local field theory constructed in a domain restricted by two hypersurfaces is quantized by a lagrangian method developed by Schwinger. The usual canonical commutation relations hold for pairs of points on either of the two hypersurfaces. There are no representations connected with intermediate surfaces. The Schrödinger equation does not exist. The two boundary hypersurfaces are physically distinguished by the fact that interactions with the apparatus of measurement take place on them. Probability amplitudes for transitions between states on these surfaces are computed and a method of direct quantization of the field equations is discussed. Adequate conditions for the existence of analytic solutions are given in the case of a quantized field coupled to an external field. The general case of two interacting quantized fields is discussed and some necessary conditions for the existence of regular solutions are formulated.



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6267. On a regular field theory. II (quantized).
J. RAYSIL. *Acta phys. Polon.*, 13, No. 1, 15-28 (1954).
For PT, see Abstr. 7427 (1953). A non-local field theory constructed in a domain restricted by two hypersurfaces is quantized by a Lagrangian method developed by Schwinger. The usual canonical commutation relations hold for pairs of points on either of the two hypersurfaces. No representations connected with intermediate surfaces exist, and the Schrödinger equation also does not exist. The two boundary hypersurfaces are physically distinguished by the fact that interactions with the measuring apparatus take place on them. Probability amplitudes for transitions between states on these surfaces are computed. A method of a direct quantization of the field equations is discussed. Sufficient conditions for the existence of analytical solutions are given in the case of a quantized field coupled to an external field. The general case of two interacting quantized fields is discussed and some necessary conditions for the existence of regular solutions are formulated.

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268. On the energy of bound states in quantum field theory. L. J. RAYKEL. *Acta phys. Polon.*, 13, No. 1, 51-65 (1956)

An equation for the eigenvalues of the energy of two-body systems is derived from field theoretical first principles. The simple model of non-relativistic spinless charged fields is treated as an example. Since the energy eigenvalue problem refers to a fixed time instant, the explicit consideration of retardation may be avoided and the instantaneous electromagnetic field may be represented as a sum of two terms: the first in the form of free waves, the second in the form of a stationary solution. The energy field operator splits into several parts: the kinetic energy of charged fields, the energy of photons, the interaction energy between photons and the charged fields, several self-energy terms (due to the interaction between a charged field and the electromagnetic field produced by the same charged field), cross terms (due to the interaction between a charged field and the stationary electromagnetic field produced by the other charged field). The cross terms may be transcribed to the configuration space and yield, besides the Coulomb interaction and the Breit terms, some other corrections. The equation for the energy eigenvalues, i.e. the generalized time independent Schrödinger equation, is written in terms of relative co-ordinates of the two particles. A.

RAYSKI, J.

The mass spectrum of elementary particles. [rray
Rayski (Univ. Toru). *Acta Phys. Polon.* 13, 77-88(1954).]
Generalized field equations (Schroedinger-Gordon and
Dirac) together with reciprocal supplementary conditions
postulated within the framework of nonlocal (bilocal) (cf.
Bagge, *C.A.* 48, 1133b) field theory are shown to lead to
mass quantization. Families of particles may be classified
with respect to (integer or half-integer) values of the spin
and of the isotopic spin. The mass spectra of the nucleon
and pion families are found to consist of two parts: a proper
mass and a field mass. The field mass is responsible for the
fine structure of the mass levels. Sylwia Nowinska

Rayski, Jerzy

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Rayski, Jerzy. On a regular field theory. III. Acta
Phys. Polonica 13, 95-114 (1954). (Russian summary)
[For parts I-II see same Acta 11, 314-327 (1953); 13,
15-28 (1954); these Rev. 15, 82, 917.] The convergence of
the author's non-local field theory [Hanus and Rayski,
ibid. 12, 181-193 (1953); these Rev. 15, 587] is tested by
computing to order e^2 the vacuum-to-vacuum matrix ele-
ment of the reaction matrix K . The result is finite, and it is
shown how the usual divergent results of the local theory
arise from it when the form-factor tends to a delta-function
and when the region of space-time considered tends to
infinity.

P. J. Dyson (Princeton, N. J.).

RÁYSKI, JERZY

Ráyski, Jerzy. Simple examples of failure of the standard
perturbation methods. Studia Soc. Sci. Torun. Sect.

A. 3 (1954), 73-85. (Polish summary)

Example 1. A Klein-Gordon wave-function $\psi(x)$
satisfying the equation

$$(\square - m^2 - \lambda) \psi = 0$$

is expanded as a power-series in λ . The exact solutions are
of course well-known. The expansion is meaningful and
gives the correct solution if the initial values of ψ are
given at a finite time t . But if one tries to pass to the
limit $t \rightarrow -\infty$ (as is customarily done in quantum field
theory) the expansion becomes mathematically ambiguous
(as a result of diverging integrals) and an exact solution
does not exist.

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Example 2. Two fields ψ_1, ψ_2 satisfying

$$(\square - m^2)\psi_{1,2} = \lambda^2 \psi_{2,1}$$

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The behavior is precisely the same as in Example 1.

Example 3. A Dirac field ψ in a constant electromagnetic potential A_μ . There again exists no exact solution in which an "unperturbed" initial state of ψ is specified at $t = -\infty$. In this case the mathematical ambiguity in the perturbation expansion is identical with the well-known "photon self-energy" divergence. *F. J. Dyson,*

Polar

✓ **Heavy mesons and hyperons.** Jerzy Rayski. *Postępy
Fiz.* 6, 193-208 (1955).—A theoretical conception justifying
the existence of various heavy unstable particles and de-
scribing their properties is attempted within the framework
of space-time. Analysis of principles leads to the conclusions,
not yet experimentally confirmed, that hyperons are likely
to be produced in pairs at nucleon collisions, and that a meson
of spin 3 is a metastable particle belonging to the pion family
of the same parity as π and with similar properties, i.e. de-
caying into 3 pions. The existence of a long-lived hyperon
of mass 2000 and spin 3/2, belonging to the Λ family, is pre-
dicted and it is assumed to decay into a nucleon and a π -
meson.

Sylvia Nowinska

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Rayski J.

Distr: 4B3d

Rayski, Jazy. Introduction to the bilocal theory of
elementary particles /Acta Phys. Polon. 14 (1955),
337-364. (Russian summary)

6
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Hanus, W.; and Rayski, J. On the mass spectra for
bosons /Acta Phys. Polon. 15 (1956), 117-122. (Ru-
ssian summary)

Within the context of Rayski's bilocal theory [Nuovo
Cimento (9) 10 (1953), 1729-1735; Acta Phys. Polon.
13 (1954), 77-88; MR 12, 766] these papers obtain a mass-
spectrum for all elementary particles except photons and
gravitons. A. Salam (Cambridge, England).

RMS
JR

RAYSKI, J.

Rayski, J. On a group-theoretical systematization of
elementary particles. Bull. Acad. Polon. Sci. Cl. III.
HS3, 255-257 (1955).

This is a short note proposing a classification of the elementary particles according to spin, parity and whether they are described by a first- or second-order wave equation. It is asserted that, with appropriate choice of couplings, long life times, copious production of pairs of heavy particles, and the hyperon contribution to nuclear forces can be explained. The scheme is unified by describing all particles in terms of a bilocal field satisfying conditions which are related to those proposed by Yukawa [Phys. Rev. (2) 77, 219-226 (1950); MR 11, 567]. That the mass spectrum predicted by the theory does not agree with experiment is attributed to electromagnetic interaction, which the theory neglects. A.S. Wightman.

1 - F/W

RAYSKI, J.

On the problem of systematization of heavy mesons and hyperons.
p. 149. ACTA PHYSICA POLONICA. Vol. 14, no. 1/2, 1955. In
English.

Warszawa.

SOURCE: East European Accessions List (EEAL), LC, Vol. 5, no. 3, March 1956

RAYSKI, J.

530.145
9423. On a bilocal theory of families of elementary particles. (J. RAVSKI, *Acta phys. Polon.*, 14, No. 1-2, 107-20 (1955))

The generalized bilocal gauge equations restricted by reciprocally invariant supplementary conditions describe families of particles with various spin and mass values. In contradistinction to a previous supposition no direct connection with the isotopic spin theory exists. A close connection with Elzra's theory of higher spins is shown. The question of interaction is briefly discussed.

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Rauski, S.

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✓ 6348. INTRODUCTION TO THE BILOCAL THEORY OF ELEMENTARY PARTICLES. J. Rauski

Acta phys. Polon, Vol. 14, No. 1, 331-34 (1955).

A generalized field formalism (closely connected with that of Yukawa) incorporating a fundamental length l may be regarded as a new type of field quantization: the "l-quantization", to be distinguished from the canonical "h-quantization". The l-quantization appears to be the mass and spin quantization and leads to a rotator (or spinrotator) model of elementary particles. The particle is represented by (the surface of) a sphere of radius $l^2 M$ (M being the rest mass). The general solution of the (first- or second-order) field equation includes a whole family of particles with higher spins and masses. A close connection with Fierz's theory of higher spins is discussed. The particles are classified in families and super-families according to the type of the field equations (of the first- or second-order) and the type of parity. Four families of bosons and six families of fermions follow from general group-theoretical considerations. There exists a homomorphism between all single and multi-values irreducible representations of the group of rotations and inversions and the possible types of elementary particles. All sorts of particles known at

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present (light fermions, light and heavy mesons, nucleons, hyperons) fit into our scheme except the photons (and gravitons) which have to be considered separately. Qualitative properties (decay schemes, etc.) are explicable in terms of selection rules due to the conservation of angular momentum and parity. Theoretical values of the masses which follow from this formalism agree in some cases remarkably well with experiment. In the remaining few cases (μ , π , Ω^0) the agreement is only rough but the discrepancies are probably caused by a "fine structure" of the mass levels (self-masses) due to interaction.

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Rayski, J.

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ON A BILOCAL INTERPRETATION OF ISOTOPIC SPIN.
J. Rayski Nicolaus Copernicus Univ., Torun, Poland.

ANNUAL EDITION (40) 3, 128-300 (1958) Jan. (in English)

The systematization of elementary particles given is
complementary to that of Gell-Mann. Arguments against the
existence of an isotopic spin space are given. The isotopic
spin seems to be explicable within the framework of the bi-
local field theory without necessity of increasing the number
of dimensions of the physical space. (auth)

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Rayski, Jerzy

3

✓ Rayski, Jerzy. A variational principle for bilocal field theory. Acta Phys. Polon. 15 (1956), 123-127. (Russian summary)

In bilocal field theory, the field operator satisfies a symmetrical set of equations which is larger in number than the number of independent field components. In previous work some of the equations were derived as Euler-Lagrange equations of a variational principle and the rest regarded as constraints [see, e.g., C. Bloch, Danske Vid. Selsk. Mat.-Fys. Medd. 26 (1950), no. 1; MR 12, 292]. In this note, the author gives a variational principle from which all the equations follow so that they are all treated on an equal footing. A. S. Wightman.

RAYSKI, J.

RAYSKI, J. A discussion on bilocality. p. 89

Vol. 15, no. 2, 1956
ACTA PHYSICA POLONICA
SCIENCE
Warszawa, Poland

So: East European Accession, Vol. 6, no. 2, Feb. 1957

RAYSKI, J.

On a screw model of particles in isospace.

p. 279 (Acta Physica Polonica) Vol. 16, no. 3, 1957, Warszawa, Poland

SO: MONTHLY INDEX OF EAST EUROPEAN ACCESSIONS (EEAI) LC, VOL. 7, NO. 1, JAN. 1958

Hanus, J.

POLAND/Theoretical Physics

B-6

Abs Jour : Referat Zhur - Fizika, No 5, 1957, No 10921

Author : Hanus, W., Rayski, J.

Inst : O

Title : On the Mass Spectra for Bosons

Orig Pub : Acta phys. polon., 1956, 15, No 2, 117-122

Abstract : A study is made of the mass spectrum in the bilocal theory. For this purpose, the square of the mass m^2 is replaced in the bilocal equations of motion by the mass operator M^2 . Introducing the mass operator should not disturb the compatibility of the equations of motion. This requirement leads to the condition for the determination of the mass spectrum: $\hat{M}^2 \psi = m^2 \psi$. Two possible choices of the operator M^2 are considered. It is proposed, that in one case the mass spectrum obtained corresponds to the family of π mesons, and in the second to the family of K mesons.

Card 1/2

POLAND/Theoretical Physics

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Abs Jour : Referat Zhur - Fizika, No 5, 1957, No 10921

In both cases the mass m_n corresponds to a particle with
spin $\frac{1}{2}$.

A brief comparison with experiment is given.

Card 2/2

R. S. S. Serby
POLAND/Theoretical Physics

B-6

Abs Jour : Referat Zhur - Fizika, No 5, 1957, No 10922

Author : Rayski Jerzy
Inst : O

Title : A Variational Principle for Bilocal Theory.

Orig Pub : Acta phys. polon., 1956, 15, No 2, 123-127

Abstract : The Lagrange equation and the Hamilton variational principle are generalized to include the case of the bilocal theory. The variational principle consists of four individual variational conditions $\sum (\int \sigma(s) = 0, \sigma_1, \sigma_2)$. The compatibility of these conditions is shown. The variational principle admits of generalization to include the case, in which one introduces into the equation of motions the mass operator: $m^2 \rightarrow M^2$. The variational conditions do not lead to the conservation laws, but the

Card 1/2

POLAND/Theoretical Physics

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Abs Jour : Ref Zhur - Fizika, No 5, 1957, No 10922

corresponding continuity equations can be obtained
directly from the bilocal equations of motion.

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MA/CHL, J.

Antiparticles. p. 233.

SO: Monthly List of East European Accessions (FEAL) LC, Vol. 6, no. 7, July 1957. Uncl.

RAYSKI, JERZY
POLAND/Nuclear Physics - Elementary Particles

C-3

Abs Jour : Ref Zhur - Fizika, No 7, 1958, No 15024

Author : Rayski Jerzy
Inst : Physics Institute, Polish Academy of Sciences; N. Copernicus University, Torun, Poland
Title : On a Screw Model of Particles in Iso-space

Orig Pub : Acta phys. polon., 1957, 16, No 4, 279-291

Abstract : For each particle (including leptons) the author derives the attribute $a_3 = b - q - t_3$ where b is the number of baryons minus the number of anti-baryons, q is the charge, and t_3 is the projection of the isotopic spin on the "electromagnetic axis" in the isotopic space. In analogy with t_3 , the attribute a_3 is interpreted as the projection of the supplementary momentum in the isotopic space (value a) consisting in turn, for the case of half integer a , of an "orbital" and "spin" part. It is proposed that the fundamental portion of the particle mass is due to this momentum (non-field "mechanical" mass).

Card # 1/2

Card : topic moment of one half. -- which carries an iso-
topic moment of one half.

APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001444410020-1

RAYSKI, JERZY

B-6

POLAND/Theoretical Physics - Quantum Field Theory

Abs Jour : Ref Zhur - Fizika, No 5, 1958, No 9954

Author : Rayski Jerzy
Inst : N. Copernicus University, Torun, Poland
Title : A Discussion on Bilocality. II.

Orig Pub : Acta phys. polon., 1956, 15, No 6, 407-421

Abstract : Using the commutation relations

$$[\xi_{\mu a}, \xi_{\nu b}] = i l^2 \delta_{ab} (\gamma_a \gamma_b) = \begin{pmatrix} 0 & 1 \\ -1 & 0 \end{pmatrix},$$

where $\xi_{\mu 1} = \xi_\mu$ is the space-time coordinate, and $\xi_{\mu 2} = il^2 \partial_\mu$, is the displacement operator, the author introduces into the theory an elementary length l . If the field is considered as a function $\xi_{\mu a}$ (with the matrix corresponding to the field being non-diagonal in the space $\{\gamma_a\}$), then the obtained theory is equivalent to the Yukawa non-local theory (Referat Zhur Fizika, 1954, No 3, 2263). The elementary length l can also be introduced into the theory, assuming the field to be

RAYSKI, J.

Infeld's Nowe drogi nauki (The New Roads of Science); a book review. p. 611.

POSTEPI FIZYKI. (Polskie Towarzystwo Fizyczne)
Warszawa. Vol. 9, no. 5, 1958
Poland/

Monthly List of East European Accessions Index (EEAI), LC, Vol. 8, no. 6, June 1959
Uncl.

CONFIDENTIAL

"Spin model of particles in isospace." p. 225.

MAGYAR FIZIKAI POLYGYRAT. (Magyar Tudomanyos Akademia). Budapest, Hungary,
Vol. 6, No. 3, 1958.

Monthly list of East European Accessions (FEAI), IC, Vol. 3, No. 8,
August 1959.
Unclu.

POLAND/Nuclear Physics - Elementary Particles. C

Abs Jour : Ref Zhur Fizika, No 11, 1959, 24448

Author : Rayski, Jerzy

Inst : Jagiellonian University, Krakow; Institute of Physics,
Polish Academy of Sciences

Title : On a Possible Relation Between Space and Isospace

Orig Pub : Acta phys. polon., 1958, 17, No 2-3, 137-151

Abstract : The author discusses the physical reality of isotopic space, with isotopic and ordinary spaces being joined into a single space. Attempts are made to trace laws, similar to the Mendeleev law, for elementary particles. The classification of elementary particles: N, \leq , \wedge , \equiv K is given in terms of an invariant six-dimensional group, obtained as a result of merging the Lorentz group and the isotopic-spin group:

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POLAND/Nuclear Physics - Elementary Particles. C

Abs Jour : Ref Zhur Fizika, No 11, 1959, 24448

where ℓ is the fundamental length, and the electric charge is determined by the relations $b - q = I_3 + K_3$. The author proposes, starting from the connection between charge conjugation and time reflection, to relate the reflection of time and of the third axis of isotopic space. The metrics of the unified space is given by the signature $---$. The possibility of introducing a 12-dimensional space is considered. -- G.A. Sokolik

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HUNGARY/Nuclear Physics - Installations and Instruments.
Methods of Measurement and Research

C

Abs Jour : Ref Zhur - Fizika, No 8, 1959, 17276

and negative for anti-particles, integer for particles with integer spin, and fractional for particles with half-integer spin. As the mass of the particle increases, its absolute magnitude increases. For mesons, $a = 0$. Since, furthermore, it is found that $t_3 + a$ is strictly constant both for strong and for weak interactions, it is possible to consider also the attribute as the third component of a certain vector. This suggests to the author to postulate the following model: the particle has a center, which has a spin, and an external point (remote from the center by a certain distance r), having a spin and orbital angular momentum. In addition, the particle (anti-particle) has a right-hand (left-hand) helical property. The spin of the center is considered as isobaric spin. In such a model the attribute is the third and largest component of the vector of the

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POLAND/Nuclear Physics - Elementary Particles.

C

Abs Jour : Ref Zhur Fizika, No 11, 1959, 24447

Author : Rayski, Jerzy

Inst :
Title : An Attempt to Geometrize Mesolectrodynamics.

Orig Pub : Acta phys. polon., 1958, 17, No 2-3, 187-198

Abstract : In this paper, an attempt is made to interpret gauge transformations and isotopic spin with the aid of six-dimensional rotation group. It is proposed that the world is a set of two-dimensional vicinities, and that the first four coordinates that specify the vicinity correspond to the Minkowski space, while the coordinates of the vicinity correspond to isotopic space. The metric of the entire space joining the usual space with the isotopic space has a signature +++++-. It is shown that the electromagnetic field can be specified in terms of the curvature of the space in coordinates x_5 and x_6 .

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21(7), 24(3)

AUTHOR:

Rayski, Jerzy

POL/45-18-4-7/8

TITLE:

A Six-dimensional Riemannian Manifold, Its Applications to
Meso-electrodynamics, and a Systematization of Strongly
Interacting Particles

PERIODICAL:

Acta Physica Polonica, 1959, Vol 18, Nr 4, pp 371-385 (Poland)

ABSTRACT:

The conservation laws of energy, momentum and angular momentum in the physical theories exhibit a geometrical background, contrary to the conservation laws of charge or the baryon number. The author attempts to eliminate this asymmetry by the conception of a six-dimensional world which permits a geometrical interpretation of electric charge, charge conjugation, gauge transformations, and of the electromagnetic field. Similarity between electric charge and angular momentum is observed, and the "electric space" is defined as a two-dimensional space. In this way the electric charge acquires the meaning of a spin, gauge transformations and charge conjugation thus being interpreted as rotations and inversion in the electric space. The six-dimensional space as investigated by the author, is signed +---- so that the two electric dimensions are time-like and only a

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